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U. S. DEPARTMENT OF AGRICULTURE,

WEATHER BUREAU.

The Probable State of the Sky along the Path
of Total Eclipse of the Sun, May 28,
1900, Observations of 1899.

Prepared under direction of WILLIS L. MOORE, Chief U. S. Weather Bureau.

BY

FRANK H. BIGELOW,

PROFESSOR OF METEOROLOGY.



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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Washington, D. C., October 30, 1899.

*The Honorable,
The Secretary of Agriculture.*

SIR: I have the honor to transmit herewith a copy of the third report, covering the observations of 1899, on the Probable State of the Sky along the Path of the Total Eclipse of the Sun, May 28, 1900, by Prof. Frank H. Bigelow, and to recommend its publication as a bulletin of the Weather Bureau. Observations have been made in 1897, 1898, and 1899, to determine the prevailing average cloudiness in the districts covered by the eclipse track, and the results are here summarized for the information of astronomers and others interested in the approaching eclipse.

Very respectfully, your obedient servant,

WILLIS L. MOORE,
Chief U. S. Weather Bureau.

Approved:

JAMES WILSON,
Secretary.

THE PROBABLE STATE OF THE SKY ALONG THE PATH OF
THE TOTAL ECLIPSE OF THE SUN, MAY 28, 1900. THIRD
REPORT. OBSERVATIONS OF 1899.

By Prof. FRANK H. BIGELOW.

The total eclipse of the sun, which occurs on May 28, 1900, is of special interest to the people of the United States, because of its unusually convenient place of happening in the East Gulf and Middle Atlantic States. Instead of being obliged to make a long journey to the ends of the earth to view this eclipse, we are fortunate enough to have the path at home, in readily accessible localities. The cities of New Orleans, La., Mobile, Ala., Montgomery, Ala., Raleigh, N. C., and Norfolk, Va., all lie within the shadow path of totality, and this is certainly one of the most unique conditions possible, as it will enable thousands of persons to see that most wonderful spectacle of astronomy, the solar corona. Astronomers are making their preparations to locate stations along the shadow path, and to carry out an extensive series of scientific observations. With the purpose of facilitating these operations, by pointing out the most favorable localities where the sky is likely to be freer of clouds than anywhere else, the United States Weather Bureau has executed a survey of the sky for determining its probable cloudiness along this path. Since the prevailing meteorological conditions at that season of the year, May and June, have certain features by which cloudiness is more concentrated in some places than in others, it is possible to determine the facts by a systematic set of observations designed for that object. Prof. D. P. Todd suggested the importance of attempting to secure such preliminary records, and has made an application of the method to the eclipse of April 16, 1893, in Chile, and of August 9, 1896, in Japan. On previous occasions, instead of such special surveys, the available meteorological records along eclipse tracks were carefully examined, as for the eclipse of July 29, 1878, in the western territories of the United States, in order to determine the relative cloudiness, but Professor Todd's plan is more elaborate and involves special observations at the local hour of the eclipse, at many stations along the track, and requires them to be repeated during three years preceding the eclipse. The Weather Bureau has carried out this program, and possesses records from 66 stations in 1897, 88 in 1898, and 76 in 1899. This work has been done by voluntary observers who have earned the thanks of the Bureau and the public for this contribution to the subject. Before presenting the results derived for the probable cloudiness, the circumstances of the eclipse may properly be briefly stated.

I. CIRCUMSTANCES OF THE ECLIPSE.

The astronomical data for the eclipse of May 28, 1900, are taken from the American Ephemeris and Nautical Almanac, issued about three years in advance. Chart I shows the location of the totality path, the places from which the different phases are to be seen, and the hours of occurrence. The track of totality begins on the Pacific Ocean just west of Mexico at sunrise, trends due eastward over Mexico, enters the United States very near New Orleans, La., and extends northeastward over Mobile and Montgomery, Ala., near Atlanta, Ga., over Raleigh, N. C., and leaves this country in the region of Norfolk, Va., and Cape Henry. It then crosses the Atlantic Ocean and touches Europe at Coimbra, Portugal, takes in Algiers and northern Africa, and terminates near the northern end of the Red Sea at sunset. The sun's eclipse may, therefore, be observed in the United States in the morning hours from about 7^h 20^m to 9^h 0^m local mean time, and in Spain and Africa in the afternoon after 4 o'clock.

TABLE I.—*A total eclipse of the sun, May 28, 1900, visible in Mexico, the East Gulf and Middle Atlantic States, in Spain, and in northern Africa.*

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of conjunction in right ascension May 28^d 2^h 57^m 2.7^s.

Sun and moon's right ascension	4 ^h 19 ^m 47.38 ^s .	Hourly motions, 10.16 ^s and 149.08 ^s .
Sun's declination.....	21° 27' 16.0'' N.	Hourly motion..... 0' 24.2'' N.
Moon's declination.....	21 50 17.4 N.	Hourly motion..... 2 41.0 N.
Sun's equatorial horizontal parallax.....	8.7	Sun's true semidiameter... 15 46.6
Moon's equatorial horizontal parallax.....	58 27.4	Moon's true semidiameter.. 15 55.9

CIRCUMSTANCES OF THE ECLIPSE.

	Local mean time.	Longitude W. Greenwich.	Latitude N.
Eclipse begins	May 28 ^d 5 ^h 41.2 ^m a. m.	97° 49.5'	9° 59.2'
Central eclipse begins	28 5 27.9 a. m.	116 38.4	17 50.3
Central eclipse at noon	28 11 57.0 a. m.	45 0.4	44 56.8
Central eclipse ends	28 6 40.0 p. m.	—31 37.1	25 20.6
Eclipse ends	28 6 25.6 p. m.	—12 29.4	17 32.8

PATH OF THE SHADOW OVER THE UNITED STATES FROM NEW ORLEANS, LA., TO NORFOLK, VA.

Number.	Time.		Northern limit of shadow path.		Central line.		Southern limit of shadow path.		Duration of totality on the central line.
	Greenwich mean time.	Local mean time.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	
1	May 28 ^d 1 ^h 30 ^m	7 ^h 27.4 ^m a. m.	0 56.3	91 5.1	+29 46.5	90 39.7	+29 36.7	90 14.3	1 ^m 12.6 ^s
2	1 35	7 47.1	31 47.7	87 22.8	31 36.0	86 58.2	31 24.3	86 33.6	1 19.6
3	1 40	8 5.2	33 25.0	84 5.2	33 11.8	83 41.4	32 58.6	83 17.6	1 26.0
4	1 45	8 22.2	34 51.9	81 4.1	34 37.3	80 41.1	34 22.7	80 18.1	1 31.7
5	1 50	8 39.5	36 10.3	78 14.6	35 54.4	77 52.4	35 38.5	77 30.2	1 37.0
6	1 55	8 54.2	37 21.7	75 33.5	37 4.6	75 12.1	36 47.5	74 50.7	1 41.9

Table I gives the astronomical data that concerns the prediction for the United States. It is hoped that many persons will study the theory of predicting eclipses and learn to utilize the tables which are prepared for the purpose. The time of conjunction of the sun

and moon, the declinations, the equatorial horizontal parallaxes, hourly motions, and semidiameters are given. These enable one to construct a diagram of the central path of the moon over the sun's disk, to show how much it overlaps, and thence to calculate the duration of obscurity. The result is that this is an eclipse of short duration, lasting from $1^m 13^s$ to $1^m 42^s$ in the United States. A long eclipse lasts from 5^m to 6^m , but these are of rare occurrence. The time and place of the beginning and ending of the eclipse on the edge of the sun, that of total obscurity, as well as the central eclipse at noon, are placed in the section headed "Circumstances of the Eclipse." These define the track from which contacts may be observed. "Eclipse begins" indicates the time and place of the earth first touching the penumbra of the moon; "central eclipse begins," that of axis of moon's shadow touching the earth; "central eclipse at noon," that of the axis of the shadow coincident with the plane of the meridian at the point of its intersection with the earth's surface; "central eclipse ends" and "eclipse ends" have corresponding converse meanings. A description of the eclipse computation is found in the American Ephemeris for 1900, pp. 525-531. The location of the shadow path in the United States is obtained from the data of the next section of Table I. The times are given in Greenwich mean time, and also in local mean time, with the corresponding latitudes and longitudes, and the duration of the totality on the central line. Thus, to find the time and place where the eclipse will last $1^m 12^s$, the time is $7^h 27^m 4^s$ a. m., and the three pairs of coordinates for the northern, central, and southern lines fix three points nearly at right angles to the path for the given time, which applies to the central line of the totality. The position of this line is a little southwest of New Orleans, La., and it is marked 1 on Chart IV.

There are six such lines on the map, drawn across the track from northwest to southeast, at intervals of five minutes of Greenwich mean time, numbered from 1 to 6, as in Table I, first column. Stations which are located within the path and between these cross lines should interpolate proportionally for the time and duration of totality at their place, the table numbers referring to the central line, and the duration diminishing to zero upon the northern and southern limits of the shadow. It will be observed that the local hour of totality increases from west to east, beginning with 7^h and 27^m a. m. near New Orleans, La., and growing later to $8^h 50^m$ near Norfolk, Va., as the shadow sweeps over the country; also, the duration is $1^m 13^s$ near New Orleans La., and $1^m 42^s$ near Norfolk, Va. This fact constitutes a powerful argument for locating the stations as far eastward as possible, in North Carolina and Virginia, since the gain of half a minute is made in the duration of the totality of the eclipse, which is important when the seconds are precious for observations.

II. PROBABLE STATE OF THE SKY ALONG THE PATH IN THE UNITED STATES.

We now pass to an account of the results of the cloud observations made by the Weather Bureau to determine the relative amount of cloudiness likely to prevail along the shadow path of the eclipse. Although the plan of taking special observations for three years was suggested some time ago, and while there have been for other eclipses discussions of the available data obtained from special observations, this survey by the Weather Bureau is the first case where such work has been systematically carried out for three successive years on an adequate scale to give decisive conclusions. The results show that the record for each year affords the same general determination, and the three years harmonize well together so that no contradictory evidence has arisen to throw doubt upon the final outcome of the investigation.

The survey of the eclipse track for cloudiness during the season of 1899 has been conducted in precisely the same manner as for the years 1897 and 1898. The work was done by voluntary observers, at the suggestion of the Weather Bureau, which furnished the necessary forms and instructions for the observations. The number of reports received has been sufficient to give definite results in each of the three years.

The observations were divided into two parts: (1) On the general state of the sky, and (2) the state of the sky near the sun. On each morning there were six entries to be made in the journal, being composed of these two sets of observations, made at 8:00 a. m., 8:30 a. m., and 9:00 a. m., that is about the hour of the eclipse. The notation adopted for the respective cases was: (1) 0=sky entirely clear; 1=sky $\frac{1}{4}$ cloudy; 2=sky $\frac{1}{2}$ cloudy; 3=sky $\frac{3}{4}$ cloudy; 4=sky all cloudy; and (2) 0=sun clear from clouds; 1=sun in scattered clouds; 2=sun in a mass of clouds; 3=sun quite invisible. A complete record covered thirty-two observing days, and hence the maximum cloudiness for the three daily observations would amount to 384 for the general sky, and 288 for the sky near the sun for the entire period. Since the sum of the entries was always smaller than the maximum the percentage of the cloudiness actually observed is equal to the sum of the recorded numbers divided by 384 and 288, respectively.

Table II gives the result of the observations for 1899, computed in this manner. The first column contains the name of the stations; the second the observers' names. The figures under 8:00, 8:30, and 9:00 give the total cloudiness recorded at the respective hours during the thirty-two days of observation from May 15 to June 15, inclusive; and finally the sum of them follows. The mean of all the stations within a single State is taken and reduced to the percentages for final discussion.

It will be noted that the percentages for the second case, sky near

the sun, run a little smaller than for the first case, general sky, averaging between 1 per cent and 2 per cent lower, which shows that the morning hour during this period is rather more favorable for the sky near the sun than for the rest of it, and indicates that the low altitude of the morning sun will not be an unfavorable circumstance in the Southern States. It is seen that the resulting percentages for 1899 show a diminution of cloudiness from the Atlantic coast near Norfolk, Va., toward Georgia, and also from the Gulf coast near New Orleans, La., toward the same point. This means that central Georgia and eastern Alabama, about south of Atlanta, is the most favorable part for avoiding the tendency to cloudiness, and that therefore this is the best region for locating the eclipse stations so far as that consideration is concerned.

TABLE II.

Stations.	Observers.	General state of the sky.				Sky near the sun.			
		8:00	8:30	9:00	Sum.	8:00	8:30	9:00	Sum.
<i>Virginia.</i>									
Nimmo ¹	L. A. Brock.....	49	45	42	136	37	35	32	104
Hampton.....	C. K. Goodrich.....	63	57	57	177	41	33	35	109
Onancock.....	J. C. Weaver.....	28	27	25	80	23	20	21	64
Birdsnest.....	C. R. Moore.....	53	61	63	177	37	46	43	125
Wallacetown ²	Jno. G. Wallace.....	38	39	40	117	31	34	32	97
Means.....					137				100
Per cent of total possible cloudiness.....					35.7				34.3
<i>North Carolina.</i>									
Gatesville.....	J. T. Walton.....	66	60	54	180	49	47	39	135
Willeyton.....	H. B. Cross.....	46	48	40	134	33	37	25	95
Winton.....	S. S. Daniel.....	42	40	42	124	30	21	25	76
Rich Square.....	A. S. Webb.....	46	45	46	137	37	33	31	101
Scotland Neck ³	R. H. Gray.....	19	17	17	53	14	13	12	39
Weldon.....	H. S. S. Cooper.....	63	62	62	187	42	39	36	117
Nashville.....	J. B. Boddie.....	45	46	41	132	30	32	32	92
Springhope.....	Geo. W. Bunn.....	66	61	67	194	40	40	42	122
Louisburg.....	Thos. B. Wilder.....	42	37	33	112	25	23	20	68
Selma ¹	R. J. Noble.....	42	42	42	126	31	31	31	93
Auburn.....	Troy Poole.....	37	33	35	105	24	20	24	68
Raleigh.....	C. von Herrmann.....	57	57	54	168	40	40	42	162
Moncure.....	W. H. Thompson.....	30	30	22	82	25	24	21	70
Pittsboro.....	H. H. Merritt.....	46	43	36	125	35	33	27	95
Fayetteville.....	Frank Glover.....	48	46	43	137	35	31	29	95
Rockingham.....	J. M. Stansill.....	46	40	37	123	26	29	22	77
Albemarle.....	Green M. Dry.....	35	33	33	101	27	22	22	71
Wadesboro.....	W. K. Boggan.....	17	14	12	43	12	11	9	32
Monroe.....	T. A. Ashcroft.....	37	28	21	86	24	18	12	54
Means.....					128				88
Per cent of total possible cloudiness.....					33.3				30.6
<i>South Carolina.</i>									
Cheraw.....	H. L. Powe.....	51	47	46	144	33	26	31	90
Lancaster.....	J. C. Foster.....	61	59	56	176	27	27	24	78
Lewis Turnout ⁴	S. M. Bowdell.....	29	16	17	62	25	16	13	54
Winnboro.....	J. W. Seigler.....	27	27	34	88	28	32	34	94
Little Mountain.....	Jno. W. Sease.....	40	43	40	123	28	30	20	78
Santuck.....	E. W. Jeter.....	27	24	20	71	25	21	21	67
Prosperity.....	J. Perry Cook.....	36	38	36	110	30	30	30	90
Newberry.....	Edw. Scholtz.....	28	35	36	99	21	23	24	68
Columbia.....	J. W. Bauer.....	55	53	44	152	45	40	35	120
Longshore.....	W. G. Peterson.....	37	36	33	106	23	25	17	65
Trenton.....	E. A. Long.....	23	23	26	72	15	13	13	41
Crosshill.....	C. T. McSwain.....	21	21	21	63	18	18	18	54
Greenwood ⁵	M. M. Calhoun.....	28	26	28	82	15	14	15	44
Saluda.....	E. L. Mathis.....	42	43	39	124	31	24	19	74
Watts.....	J. W. Thomas, M. D.....	45	44	38	127	33	32	33	98
Means.....					108				77
Per cent of total possible cloudiness.....					28.1				26.7

TABLE II—Continued.

Stations.	Observers.	General state of the sky.				Sky near the sun.			
		8:00	8:30	9:00	Sum.	8:00	8:30	9:00	Sum.
<i>Georgia.</i>									
Athens	C. D. Cox.....	23	18	16	57	15	13	12	40
Atlanta	H. P. Hardin	26	33	32	91	22	26	24	72
Griffin	E. Lovelace	28	28	28	84	22	22	22	66
Talbotton.....	Wm. T. Dennis.....	31	33	33	97	15	16	17	48
Westpoint	T. J. Jennings.....	20	13	12	45	14	11	6	31
Columbus.....	Josephene W. Long...	24	17	12	53	16	14	14	44
Means.....					71				50
Per cent of total	possible cloudiness ..				18.5				17.4
<i>Alabama.</i>									
Smiths Station.....	A. L. Frazer.....	35	29	31	95	21	20	20	61
Fort Mitchell.....	Jno. Cantry.....	33	34	34	101	24	24	26	74
Auburn	Jas. T. Anderson.....	43	39	35	117	34	31	28	93
Opelika	A. E. Barnett.....	29	28	29	86	28	28	29	85
Tuskegee	Geo. W. Carver	36	37	37	110	37	41	42	120
Union Springs	P. L. Cowan.....	23	23	26	72	24	23	24	71
Tallassee	Jno. T. Jarman.....	39	38	34	111	31	26	24	81
Mathews	W. D. Dillard	23	23	26	72	15	12	20	47
Troy	F. J. Cowart	28	27	30	85	18	17	18	53
Montgomery.....	G. E. Gardiner.....	38	31	29	98	32	24	23	79
Highland Home ¹	Saml. Jordan.....	22	17	14	53	12	8	8	28
Fort Deposit.....	C. E. Reid	22	11	23	66	17	19	19	55
Greenville	F. E. Dey	21	20	23	64	11	11	11	33
Castleberry.....	S. Castleberry.....	24	23	22	69	24	16	15	55
Latham	M. McGorran.....	18	18	18	54	13	11	13	37
Bay Minette	Mrs. M. J. Washburn..	25	27	24	76	16	21	23	60
Mount Vernon.....	G. Becker	38	36	39	113	25	21	21	67
Citronelle.....	J. G. Mitchell	25	38	47	110	16	27	30	70
Means.....					86				65
Per cent of total	possible cloudiness ..				22.4				22.6
<i>Mississippi.</i>									
Americus	Louis V. Middleton...	23	20	17	60	22	20	18	60
Ocean Springs	Thos. I. Keys.....	31	38	43	112	22	27	31	80
Biloxi	Jas. J. Lenore, M. D ..	48	42	39	129	32	25	24	81
Bay St. Louis.....	Bro. Isidore	51	57	62	170	26	30	37	93
Pearlington.....	Annette Koch.....	55	56	56	167	45	51	51	147
Means.....					148				92
Per cent of total	possible cloudiness ..				38.6				31.9
<i>Louisiana.</i>									
New Orleans.....	W. T. Blythe	40	50	54	144	10	25	24	59
Southern Unity Farm ⁶ ..	H. Jamison, Jr.....	4	6	6	16	2	2	2	6
Houma	Mrs. K. M. Haggerty..	38	42	33	123	38	28	36	102
Schriever	C. V. Moore	32	35	35	102	24	31	36	91
Paincourtville	Jos. E. Le Blanc	34	31	35	100	24	22	25	71
Centerville	T. P. Boutte.....	47	49	50	146	38	34	31	103
Franklin	J. M. Bonney	53	53	53	159	37	29	37	103
Elm Hall Plains	Edw. Godeham	67	69	54	190	35	29	23	87
Means.....					138				88
Per cent of total	possible cloudiness ..				35.9				30.6

¹One day missing. ²Four days missing. ³Twenty-one days missing. ⁴Three days missing.
⁵Eleven days missing. ⁶Twenty-three days missing.

In order to exhibit the data more fully in reference to the local conditions the data of Table II is transferred to Chart II. The figures under the name of the station are for the general sky on the left and near the sun on the right, and they may indicate to some extent the favored localities within each State. The chart shows the position of the stations and the northern and southern limits of the eclipse track in the several States, and it is therefore a complete diagram of the eclipse track.

The outcome of the cloud survey for 1899 leads us to conclude that the elevated ground of Georgia and eastern Alabama, which is higher

above the sea level than any other portion of the track and as remote from the coast line as possible, has the minimum of cloudiness for that region. The month of May in the southeastern districts of the United States is relatively free from clouds, and on the whole it is a good time and place for eclipse work. Since the average cloudiness is about 16 per cent in Georgia, it follows that astronomers have one chance in six against them if they locate their stations in that State, whereas if they should locate on the coast in either direction, the percentage rises to 35 or 40, and the chances are then two to five against them. It is needless to remark that any special cyclonic disturbance on May 28, 1900, might seriously modify this calculation. It will be remembered that precisely the same conclusion was reached for the preceding years of observation, 1897 and 1898, and we can say that the evidence from the cloud survey is uniformly in favor of that locality. The following Table III recapitulates the results of the three years' work and brings this fact out very clearly.

TABLE III.—*Summary of results for three years.*

(The figures are percentages of cloudiness.)

State.	1897.		1898.		1899.		Means.	
	General sky.	Near sun.	General sky.	Near sun.	General sky.	Near sun.	General sky.	Near sun.
Virginia			44.9	41.7	35.7	34.3	40.3	38.0
North Carolina	35.8	33.3	28.2	25.7	33.3	30.6	32.4	29.9
South Carolina	33.7	32.1	17.5	16.0	28.1	26.7	26.4	24.9
Georgia	18.4	16.0	12.2	10.8	18.5	17.4	16.4	14.7
Alabama	15.2	14.9	17.1	15.7	22.4	22.6	18.2	17.7
Mississippi			23.0	26.4	38.6	31.9	30.8	29.2
Louisiana	26.5	21.5	36.4	30.9	35.9	30.6	32.9	27.7

In order to deal with the observations at the several stations with the object of showing what advantages, if any, individual localities in any district may afford, the data for the three years has been collected together, and it is put in Table IV.

In the column of stations some names are printed in heavy-faced type. These are the stations which are located very near the central line of the path, and are on that account favorably placed for the observations. They are the stations to which attention would naturally first be given. It should be stated, of course, that this list does not exclude many other stations which are equally suitable for the eclipse work. The stations mentioned are those from which the Weather Bureau has received reports more or less complete, either regarding the cloudiness or the local conditions, summarized in Table V, and therefore are especially mentioned in this report. Some stations have furnished topographical reports, but nothing regarding cloudiness; such are indicated by a number and a letter, as 15*a*. The second column gives a station number; the third, the number of years of observation at each place; the fourth, the average cloudiness observed, being the mean of the number of years, for the

general sky; and the fifth for the sky near the sun. It should be remembered that three observations daily were combined for the thirty-two observing days in each year to produce these columns, so that a complete report for the three years would contain 288 observations. Hence, for stations reporting three years, each of the numbers against a station is the mean value of 288 observations; those reporting for two years 192, and for one year 96 individual observations. The numbers in Table IV are, therefore, of considerable weight, and may serve to distinguish accurately the relative cloudiness of the sky at the different stations even within the same State.

TABLE IV.—*Summary of the surveys for cloudiness in the years 1897, 1898, 1899.*

Stations.	Station number.	Years of record.	General sky.	Near sun.	Stations.	Station number.	Years of record.	General sky.	Near sun.
VIRGINIA.					GEORGIA—Continued.				
Cape Henry	1	2	207	132	Elberton	53	1	42	33
Nimmo	2	1	136	104	Crawfordsville	54	2	104	49
Hampton	3	2	184	112	Greensboro	54a	.....	.....	.....
Norfolk	4	2	174	130	Madison	54b	.....	.....	.....
Onancock	5	2	225	91	Athens	55	3	67	39
Birdsnest	6	2	199	135	Macon	56	1	27	24
Wallaceton	7	2	147	112	Covington	57	2	51	60
Indika	8	1	105	59	Atlanta	58	2	86	65
NORTH CAROLINA.					Barnsville	58a	.....	.....	.....
Gatesville	9	3	161	108	Griffin	59	2	62	45
Willenton	10	3	147	106	Zebulon	59a	.....	.....	.....
Winton	11	3	133	66	Talbotton	60	3	84	36
Rich Square	12	1	137	101	Westpoint	61	3	34	23
Scotland Neck	13	2	87	71	Columbus	62	3	49	40
Tarboro	14	1	162	116	ALABAMA.				
Weldon	15	3	165	106	Smiths Station	63	3	70	52
Aberdeen	15a	.....	.....	.....	Fort Mitchell	64	3	90	63
Rockymount	16	2	132	96	Auburn	65	3	80	65
Wilson	17	2	98	62	Opelika	66	1	86	85
Nashville	18	2	176	124	Lochapoka	67	2	64	35
Springhope	19	3	174	114	Tuskegee	68	1	110	120
Louisburg	20	3	110	61	Union Springs	69	3	71	65
Selma	21	3	119	90	Tallassee	70	3	88	67
Auburn	22	3	116	72	Mathews	71	3	55	40
Raleigh	23	3	177	123	Troy	72	1	85	53
Moncure	24	3	104	76	Montgomery	73	3	70	57
Pittsboro	25	3	133	97	Highland Home	74	3	44	19
Fayetteville	26	3	128	90	Fort Deposit	75	3	43	31
Laurinsburg	27	2	84	67	Greenville	76	3	42	24
Rockingham	28	3	114	62	Pineapple	77	2	83	78
Albemarle	29	2	99	60	Castleberry	78	3	58	50
Wadesboro	30	3	52	35	Monroeville	78a	.....	.....	.....
Monroe	31	3	101	72	Latham	79	3	49	24
SOUTH CAROLINA.					Bay Minette	80	3	81	65
Cheraw	32	3	133	91	Mount Vernon	81	3	103	68
Lancaster	33	3	157	83	Mobile	82	2	86	39
Lewis	34	2	59	54	Citronelle	82	3	78	44
Winnsboro	35	1	88	94	MISSISSIPPI.				
Little Mountain	36	3	133	82	Leakesville	84	1	46	47
Santuck	37	3	89	67	Americus	85	2	90	83
Prosperity	38	3	89	71	Ocean Springs	86	2	68	49
Newberry	39	1	99	68	Biloxi	87	2	137	76
Columbia	40	2	122	94	Bay St. Louis	88	2	148	60
Chappels	41	1	69	41	Pearlington	89	2	101	157
Longshore	42	2	95	51	LOUISIANA.				
Trenton	43	3	60	36	Poydras	90	2	136	47
Crosshill	44	3	70	58	New Orleans	91	3	147	68
Hodges	45	1	59	40	Southern University Farm	92	1	127	80
Greenwood	46	3	72	55	Houma	93	3	108	73
Saluda	47	3	112	72	Schriever	94	1	102	91
Troy	48	2	165	92	Napoleonville	95	1	144	89
Watts	49	2	90	70	Paincourtville	96	3	108	83
Mount Carmel	50	2	56	54	Centerville	97	1	70	82
GEORGIA.					Franklin	98	3	157	110
Leverett	51	1	92	53	Elm Hall Plain	99	1	190	87
Carmack	52	2	45	33					

In order to exhibit this feature more fully the values from the second column, sky near the sun, are plotted on Chart III, for the stations in heavy type, that is for those near the center of the shadow. On the line of abscissas is the path of totality extending from Louisiana on the left to Virginia on the right. The vertical scale is arbitrary and represents the cloud numbers. At the proper point of the axis of abscissas representing relative longitudes, the cloud number is plotted at the suitable height on the ordinate, and near it is placed the number of the station as assigned on Table IV. Thus Cape Henry (1) has for the sky near the sun for the average of two years' observations 132, which is plotted at that ordinate; Nimmo, Va. (2), has 104 for one year; Norfolk, Va. (4), 130 for two years, &c. After plotting these numbers a mean line was drawn by free hand through the set, as shown on Chart III. This line indicates very distinctly that the minimum of the average relative cloudiness is in Georgia and eastern Alabama, as heretofore stated, and it emphasizes the conclusion reached in each of the years 1897, 1898, 1899, separately. Now, by comparing the ordinate of each station with the curved line in its neighborhood, some idea can be gained as to its local cloudy tendency. It may be said that Tuskegee, Ala. (68), and Pearlinton, Miss. (89), seem to be quite abnormal, the former being observed for one year and the latter for two years. These observers may have had some personal equation in their estimates. The stations 74 to 79 seem to be especially free from regular cloudiness at the 8 a. m. to 9 a. m. hour, in the season of the year from May 15 to June 15. This chart is given for what it is worth to astronomers, and for their guidance.

The location of the eclipse track in the United States, and the position of the meteorological observing stations are given on Chart IV, The Eclipse Track and Observing Stations in the United States. It has been prepared by the Weather Bureau from maps and from the data of the American Nautical Almanac. While the scale is rather small; it yet gives quite accurately the position of some of the stations in the shadow path. The location of the other stations can be entered by reference to a large atlas, or by using the latitudes and longitudes given in Table V. The astronomical data for points on the track at 6 places on each line is to be found in Table I. The positions for five minute intervals, Greenwich mean time, of the durations of totality belonging thereto, are indicated by transverse lines at those places, together with the local mean time of the occurrence. These lines are numbered from 1 to 6, and should be compared with the first column of Table I.

A circular letter was sent out by the Chief of the Weather Bureau to a number of selected towns located near the central line of the shadow, soliciting a brief report in reply to certain questions regarding the station, which would answer the most important inquiries

likely to arise in selecting sites for the eclipse stations. These questions concern the (1) latitude, (2) longitude, (3) altitude, (4) population, (5) accommodations for visitors, (6) the railroad communications, (7) the topography of the place and immediate vicinity, (8) the condition of the eastern horizon as to smoke and fog, (9) the direction of the prevailing wind and drift of smoke at the morning hour, (10) suggestions regarding available sites for observations of the early morning sun to which heavy baggage can be carried. The replies are herewith presented nearly in the language of the authors who wrote them. Astronomers will be glad to recognize the courtesy of these persons in providing them with accurate information not otherwise to be readily obtained. It is proper to say that many replies were accompanied by personal letters, offering the most cordial hospitality to all visiting astronomers, and all possible assistance in locating their apparatus.

TABLE V.—*Local circumstances at several stations near the center of the shadow path.*

4.—NORFOLK, VA.

Latitude	36° 51' 50.59''.	} City Hall; Coast and Geodetic Survey.
Longitude.....	76° 17' 19.95''.	
Altitude	11 feet.	
Population	65,000.	
Accommodations .	Ample; 5 hotels.	
Railroads	C. & O.; N. & W.; N. Y., P. & N.; S. A. L.; A. C. L.; Southern; N. & C.; N. & S.; A. & D.; Va. B. & S.	
Steamers	Regular lines to Boston, Providence, New York, Philadelphia, Baltimore, Washington, Savannah, Liverpool, Hamburg.	
Topography	On Elizabeth River; no hills.	
Eastern horizon ..	Usually clear; not likely to be misty or smoky.	
Wind; drift.....	From south; smoke drifts north.	
Suggested site ...	Virginia Beach (latitude, 36° 51'; longitude, 76° 2') on the coast line; has hotel, 300 rooms, fine table; broad-gage railroad connecting with all the roads at Norfolk; full facilities for handling heavy baggage.	

11.—WINTON, N. C.

Latitude	36° 24'.
Longitude.....	76° 58' 30''.
Altitude.....	65 feet.
Population	1,000.
Accommodations .	For 150.
Railroads	Nearest railroad station 3 miles distant.
Topography	Chowan River on north side of town; no hills or plateau.
Eastern horizon ..	Variable; sometimes misty, sometimes smoky.
Wind; drift.....	Drift is generally toward the east.
Suggested site ...	Winton, by the river steamer.

13.—SCOTLAND NECK, N. C.

Latitude	36° 06' 30''.
Longitude	77° 24'.
Altitude	60 feet.
Population	1,500.
Accommodations .	Good.
Railroads	Branch line from Atlantic Coast Line runs by Scotland Neck to Kingston, N. C.; Norfolk and Carolina runs about six miles from Scotland Neck.
Topography	Level country; Roanoke River about six miles distant.
Eastern horizon ..	Clear.
Wind; drift.....	Changeable.
Suggested site	None.

15a.—ABERDEEN, N. C.

Latitude	35° 08' 32''.
Longitude	79° 25' 30''; 72 miles south-southwest of Raleigh.
Altitude	200 feet.
Population	600.
Accommodations .	Two hotels, 2 boarding houses, for 75 guests.
Railroads	S. A. L., and the A. & A., connecting with the Southern at High Point, N. C.
Topography	Shaws Ridge 2 miles east of the divide between the Cape Fear and the Pedee rivers.
Eastern horizon..	Fair.
Wind; drift.....	No certainty,
Suggested site....	Thomas's Vineyards, 3 miles northeast of Aberdeen.

16.—ROCKYMOUNT, N. C.

Latitude	35° 55' 20''.
Longitude	77° 50'.
Altitude	102 feet; Coast and Geodetic Survey.
Population	4,200.
Accommodations .	Seven hotels.
Railroads	A. C. L. and Southern.
Topography	Tar River on north side of the town.
Eastern horizon..	Misty, if atmosphere is damp.
Wind; drift	From south and southwest.
Suggested site....	Can be seen as easily from the town as any point near by.

19.—SPRINGHOPE, N. C.

Latitude.	35° 56'.
Longitude.....	78° 11'.
Altitude	250 feet.
Population	Between 800 and 1,000.
Accommodations .	25 to 50 persons.
Railroads	One railroad at Springhope, but the best of connections at Rockymount, 30 minutes distant by rail; 2 trains daily.
Topography	Tar River is about 2 miles south. The highest point in the county is 3 miles from Springhope.
Eastern horizon..	Likely to be fair at the season of the eclipse.
Wind; drift.....	From south or southeast.
Suggested site....	None.

22.—AUBURN, N. C.

Latitude	35° 41' 30''.
Longitude.....	78° 33'; 9 miles southeast of Raleigh.
Altitude	350 feet.
Population	100.
Accommodations .	No hotel, but lodgings in private families.
Railroads	Southern; connects at Raleigh with S. A. L., and at Selma with A. C. L.
Topography	Neuse River is 3 miles northeast.
Eastern horizon..	1897, May 28, clear; 1898, May 28, cloudy and foggy; 1899, May 28, perfectly clear.
Wind; drift.....	From southwest.
Suggested site....	A hill easily accessible; 300 yards east of station.

23.—RALEIGH, N. C.

Latitude	25° 48'.	} Weather Bureau; Coast and Geodetic Survey.
Longitude.....	78° 39' 6.12''.	
Altitude.....	375 feet.	
Population	16,000.	
Accommodations .	One first-class hotel for 300; 3 second-class hotels; numerous boarding houses.	
Railroads	S. A. L. and Southern; good connections with Washington, D. C.; Norfolk, Va.; Wilmington, N. C.; and Atlanta, Ga.	
Topography	The Neuse River, a small stream 6 miles east. No hills in vicinity, except very moderate elevations to the west.	

RALEIGH, N. C.—*Continued.*

Eastern horizon ..	No trouble from smoke, but likely to be hazy or misty.
Wind ; drift	From southwest.
Suggested site	Elevation on which fair grounds stands. The best sites are west of the city, but it is thought there will not be smoke enough to interfere. All elevations slight, and points east of city commanding clear horizon are 1 or 2 miles from station. During the past twelve years the sky at Raleigh has been perfectly clear at 8 a. m. May 28 four times.

28.—ROCKINGHAM, N. C.

Latitude	34° 59'.
Longitude	79° 45'.
Altitude	210 feet. Coast and Geodetic Survey.
Population	2,000.
Accommodations ..	One large hotel ; 1 medium size ; 1 small.
Railroads	S. A. L. Connecting with all points twice daily.
Typography	Pee Dee River 6 miles west; numerous hills to the north and west of the town with level land to the south and east.
Eastern horizon ..	Generally bright unless there are clouds.
Wind ; drift	From the west.
Suggested site	Place 4 or 5 miles southeast from railroad, 413 feet high ; or else Ropers Mountain 10 miles north from railroad, 600 feet high ; or else near railroad, which is 274 feet high.

33.—LANCASTER, S. C.

Latitude	34° 41'.
Longitude	80° 47'.
Altitude	550 feet.
Population	2,500.
Accommodations ..	Hotel for 100, and three boarding houses for 50.
Railroads	O. C., with S. A. L. at Rockhill, S. C., and Southern at Camden ; Lancaster & Chester with Southern and S. A. L. at Chester.
Topography	Catawba River west ; high hills in all directions ; broad plateau 5 miles south.
Eastern horizon ..	Clear.
Wind ; drift	Generally calm ; if blowing, from the southwest or south-east.
Suggested site	Hills to southwest, or plateau to south, each directly on railroad.

38.—PROSPERITY, S. C.

Latitude	34° 13' 30''.
Longitude	81° 34'.
Altitude	551 feet. Coast and Geodetic Survey.
Population	1,000.
Accommodations ..	Ample.
Railroads	Southern ; S. A. L. ; A. C. L.
Topography	Saluda River, Bush River ; Little Mountain 7 miles away.
Eastern horizon ..	Very clear.
Wind ; drift	From the southwest.
Suggested site	Buzzards Hill, 2 miles from town ; or else a hill in the town 100 feet above surrounding country ; or Little Mountain, half hour distant by train.

39.—NEWBERRY, S. C.

Latitude	34° 16'.
Longitude	81° 39'.
Altitude	502 feet. Coast and Geodetic Survey.
Population	6,000.
Accommodations ..	Two good hotels.
Railroads	Southern ; S. A. L. ; good connections in all directions.
Topography	Little Mountain is 15 miles southeast ; country rolling except to the north, where it is level.

NEWBERRY, S. C.—*Continued.*

Eastern horizon ..	Not likely to be misty or smoky.
Wind; drift.....	No prevailing wind.
Suggested site....	Little Mountain, on S. A. L., 1 mile from station named Little Mountain. The top is free from timber, and 400 to 500 feet above the surrounding country. Also suitable sites in the town of Newberry; Newberry College is in this town.

41.—CHAPPELS, S. C.

Latitude	34° 11'.
Longitude.....	81° 52'.
Altitude	402 feet. Coast and Geodetic Survey.
Population	125.
Accommodations .	One boarding house.
Railroads	Southern.
Topography	Saluda River; Scurry Hill and Chappels Hill; Boarman plateau 1 mile north.
Eastern horizon ..	Generally clear and unobstructed.
Wind; drift.....	From the west.
Suggested site....	Scurry Hill.

44.—CROSSHILL, S. C.

Latitude	34° 19'.	} Geological Survey.
Longitude.....	81° 58'.	
Altitude	550.	
Population	500 to 600.	
Accommodations .	Good hotel, but not large; fine hotel at Harris Springs, a summer resort, 5 miles distant.	
Railroads	S. A. L. Good connections at Greenwood, 15 miles; and at Clinton, 15 miles in the opposite direction.	
Typography.....	The Saluda River is 5 miles distant. No mountains. Harris Hotel, 5 miles northeast, is on quite an elevation.	
Eastern horizon..	Usually clear in the latter part of May.	
Wind; drift.....	Seldom much wind in the early mornings of May.	
Suggested site	Harris Hotel; heavy baggage can be carried on wagons.	

48.—TROY, S. C.

Latitude	33° 59'.	} Geological Survey.
Longitude.....	82° 18'.	
Altitude.....	520 feet.	
Population	400.	
Accommodations .	One hotel.	
Railroads	C. & W. C. connects with Southern and with S. A. L.	
Topography.....	Savannah River. One small mountain 560 feet.	
Eastern horizon ..		
Wind; drift.....		
Suggested site		

51.—LEVERETT, GA.

Latitude	33° 48'.	} Geological Survey.
Longitude.....	82° 23'.	
Altitude	420 feet.	
Population		
Accommodations .	No hotel.	
Railroads	15 miles from any railroad.	
Topography.....	Flat Hill near, 455 feet.	
Eastern horizon ..		
Wind; drift.....		
Suggested sites...		

54.—CRAWFORDSVILLE, GA.

Latitude	33° 28' 30''.
Longitude	82° 52'.

CRAWFORDSVILLE, GA.—*Continued.*

Altitude.....	604 feet. Coast and Geodetic Survey.
Population.....	800.
Accommodations..	Good.
Railroads.....	Ga., connecting with Southern at Atlanta and other railroads to the north and west.
Topography.....	No rivers; no mountains; several hills from which good views can be had.
Eastern horizon..	Usually clear in May-June.
Wind; drift.....	Very little wind at the morning hour.
Suggested site....	None specified.

54 *a.*—GREENSBORO, GA.

Latitude.....	33° 32'.
Longitude.....	83° 12'.
Altitude.....	750 feet.
Population.....	1,700.
Accommodations..	One good hotel; several boarding houses.
Railroads.....	Ga., connecting with Atlanta and Augusta.
Topography.....	Oconee River to west-southwest.
Eastern horizon..	Usually clear; if not clear, smoky.
Wind; drift.....	From the southwest.
Suggested site....	None mentioned.

54 *b.*—MADISON, GA.

Latitude.....	33° 33'.
Longitude.....	83° 29'.
Altitude.....	1,000 feet.
Population.....	3,000.
Accommodations..	For 100 guests at hotels.
Railroads.....	Ga. and Cent. of Ga., connecting with Atlanta, Augusta, Macon, and Athens.
Topography.....	Oconee River 13 miles east, on Ga. R. R.
Eastern horizon..	Fair and clear.
Wind; drift.....	From the west and southwest; to the east and northeast.
Suggested site....	Shousi's Hill, 5 miles northwest.

58 *a.*—BARNESVILLE, GA.

Latitude.....	33° 01'.
Longitude.....	84° 09'.
Altitude.....	875 feet. Coast and Geodetic Survey.
Population.....	3,000.
Accommodations..	Good.
Railroads.....	Good connections.
Topography.....	No river; no hills; Hog Mountains.
Eastern horizon..	Smoky in spring.
Wind; drift.....	From the northwest.
Suggested site....	On Hog Mountain.

59 *a.*—ZEBULON, GA.

Latitude.....	33° 05'.
Longitude.....	84° 20'.
Altitude.....	800 feet.
Population.....	400.
Accommodations..	Two hotels.
Railroads.....	The A. & F., controlled by Southern, and connecting with the Ga. M., and Cent. of Ga.
Topography.....	Generally hilly. The Flint River west; mountain systems lying west and east.
Eastern horizon..	Somewhat smoky owing to the continued mountain fires.
Wind; drift.....	Generally from the southwest.
Suggested site....	Barnesville, Thomaston, on above-named railroads. Zebulon is 50 miles south of Atlanta, and is one of the highest points between the seaboard and the mountain systems of Georgia.

60.—TALBOTTON, GA.

Latitude	32° 39'.
Longitude	84° 32' 30''.
Altitude	750 feet.
Population	1,300.
Accommodations ..	Two good hotels.
Railroads	Talbotton connects with the Cent. of Ga. at Bostick, 7 miles distant, between Macon and Columbus, Ga.
Topography	Flint River east; Oak Mountain 8 to 12 miles north-north-west; Pine Mountain 12 to 18 miles north; hill 1 mile south.
Eastern horizon ..	Seldom misty at this season; sometimes smoky.
Wind; drift.....	From the south and southwest.
Suggested site	The country is rolling and there are several good locations for seeing the morning sun.

62.—COLUMBUS, GA.

Latitude	32° 26' 30''.
Longitude	85° 00'.
Altitude	260 feet. Coast and Geodetic Survey.
Population	20,000.
Accommodations ..	Good hotels.
Railroads	Cent. of Ga. connects with Savannah and Atlanta; Southern connects with Atlanta; Ga. & Ala. connects with Montgomery and Jacksonville.
Topography	Chattahoochee River; no mountains; Alabama hills to the west; Rose Hill north; Wynton Hill east; city is on a plateau.
Eastern horizon ..	Smoky.
Wind; drift.....	From the west.
Suggested site	On the Alabama hills for the morning sun.

63.—SMITHS STATION, ALA.

Latitude	32° 29'.
Longitude.....	85° 05'.
Altitude	800 feet.
Population	50.
Accommodations ..	No hotels.
Railroads	Cent. of Ga.
Topography.....	Chattahoochee River.
Eastern horizon ..	Clear.
Wind; drift.....	From the southeast or southwest.
Suggested site....	The country is flat.

69.—UNION SPRINGS, ALA.

Latitude	32° 08'.
Longitude.....	85° 45'.
Altitude	485 feet. Coast and Geodetic Survey.
Population	3,000.
Accommodations ..	Two large hotels with 40 rooms; several good boarding houses.
Railroads	M. & G. crosses the Cent. of Ga. system; 8 trains daily.
Topography.....	Situated on Chunnuggee Ridge near headwaters of tributaries of four water systems.
Eastern horizon ..	Very clear, except during general cloudiness.
Wind; drift.....	Generally calm in morning with smoke ascending vertically upward.
Suggested site	At highest point 1 mile from station, where conditions are favorable.

71.—MATTHEWS, ALA.

Latitude	32° 16'.
Longitude.....	86° 00'.
Altitude	262 feet. Coast and Geodetic Survey.
Population	200.
Accommodations ..	No hotel.

MATTHEWS, ALA.—*Continued.*

Railroads	Cent. of Ga.; 2 trains daily.
Topography	Level country.
Eastern horizon ..	Generally clear in May and June.
Wind; drift	Variable.
Suggested site	Country is slightly rolling, and there is an elevation of about 75 feet one mile from station, but near railroad.

76.—GREENVILLE, ALA.

Latitude	31° 50'.
Longitude	86° 37'.
Altitude	300 feet.
Population	3,500.
Accommodations .	Two hotels and several boarding houses.
Railroads	L. & N.
Topography	Town is high, and slopes to the north and east; no rivers or mountains.
Eastern horizon ..	Usually clear; never misty or hazy in the spring.
Wind; drift	Usually from the southwest.
Suggested site	Plenty of good sites on the eastern edge of the town, all conveniently located.

78a.—MONROEVILLE, ALA.

Latitude	31° 31'.
Longitude	87° 20'.
Altitude	800 feet.
Population	500.
Accommodations .	Three good hotels.
Railroads	S. Ala. connects with L. & N.
Topography	Alabama River 14 miles west; hills 4 miles northwest. Monroeville is on a plateau about 500 feet above sea level.
Eastern horizon ..	Generally very clear.
Wind; drift	No smoke or fogs.
Suggested site	At Monroeville, one of the highest points on the Southern Alabama Railroad.

79.—LATHAM, ALA.

Latitude	31° 04'.
Longitude	87° 52'.
Altitude	100 feet.
Population	100.
Accommodations .	No hotel; good lodging in private house.
Railroads	Not on any railroad. There is a daily stage line from Bay Minette on the L. & N.
Topography	Alabama River 4 miles west.
Eastern horizon ..	Generally perfectly clear.
Wind; drift	Toward northwest; very little smoke here.
Suggested site	An elevation 1 mile east of village.

81.—MOUNT VERNON, ALA.

Latitude	31° 04'.
Longitude	88° 02'.
Altitude	49 feet.
Population	500.
Accommodations .	Two private boarding houses.
Railroads	M. & B., connecting with Southern at Selma, with L. & N., and M. & O., at Mobile, Ala.
Topography	Mobile River to southeast.
Eastern horizon ..	Misty.
Wind; drift	From the southwest.
Suggested site	At Mount Vernon Barracks on a hill 180 feet high, $\frac{1}{2}$ mile from station, and about 140 feet higher than the railroad. There is a tower about 100 feet high on this hill.

82.—MOBILE, ALA.

Latitude	30° 41' 20.61".	} Christ Episcopal Church spire; Coast and Geodetic Survey.
Longitude.....	88° 02' 27.89".	
Altitude.....	14 feet; top of Spring Hill is 205 feet.	
Population	40,000.	
Accommodations ..	Ample. Also at suburb, Spring Hill.	
Railroads	L. & N. to New Orleans and to Cincinnati; M. & O. to St. Louis; M. & B. to Birmingham, Ala.	
Topography	Mobile River and Bay to the east and south. No elevation except Spring Hill, 5 miles west.	
Eastern horizon ..	Great tendency to fog, haze, or smoke near the horizon in the morning.	
Wind; drift.....	Winds prevail from the south, increasing between 8 a. m. and 9 a. m.	
Suggested site....	Spring Hill, easily accessible by electric cars, less subject to vibrations of travel than the city. There is less fog and haze here than in Mobile.	

85.—AMERICUS, MISS.

Latitude	30° 44'.	
Longitude.....	88° 33'.	
Altitude.....	60 feet.	
Population	100.	
Accommodations ..	Lodging in one private house.	
Railroads	It is 10 miles to McCrary station on the M., J. & K. C.	
Topography	Pascagoula River 7 miles west; Escatawpa River 4 miles east; no important elevations.	
Eastern horizon..	Generally clear.	
Wind; drift.....	From the Gulf of Mexico, generally from south or southwest.	
Suggested site....	None specified.	

88.—BAY ST. LOUIS, MISS.

Station of 1850 on shore of west entrance of bay, 1 mile southwest of steam-boat wharf. Pine log 18 inches in diameter with copper tack in top. Coast and Geodetic Survey.

Latitude	30° 21' 53.30".	
Longitude.....	89° 21' 25.42".	
Altitude	24 feet.	
Population	3,000.	
Accommodations ..	Hotels for 500.	
Railroads	L. & N. connects with all principal points.	
Topography	Jordan and Wolf rivers.	
Eastern horizon..	Generally clear; a little misty before sunrise.	
Wind; drift.....	From the south and southeast.	
Suggested site....	The open sea is to the eastward and the view is unobstructed for the morning sun.	

89.—PEARLINGTON, MISS.

Latitude	30° 13' 4".	
Longitude	89° 34' 30".	
Altitude	5 feet.	
Population	1,500.	
Accommodations ..	One boarding house.	
Railroads	L. & N. connects with New Orleans and Bay St. Louis.	
Topography	Pearl River flows through the town. The country is almost level and covered with pine timber.	
Eastern horizon ..	Likely to be clear after 6 a. m. or 7 a. m.	
Wind; drift.....	From the southwest.	
Suggested site....	English Lookout, a small station on the L. & N. railroad; the lighthouse at Rigolis.	

91.—NEW ORLEANS, LA.

Latitude	29° 57' 32.04".	} St. Louis Cathedral; Coast and Geodetic Survey.
Longitude	90° 03' 47.83".	
Altitude	10 to 20 feet.	

NEW ORLEANS, LA.—*Continued.*

Population	300,000.
Accommodations ..	Ample and excellent.
Railroads	I. C.; L. & N.; N. O. & N. E., and others. Connections with all points.
Topography	On the Mississippi River; flat and unbroken country.
Eastern horizon ..	Generally clear; occasionally low fogs on the river.
Wind; drift	From the southeast.
Suggested site	Customhouse; any point on the levee along the city front; at West End, 7 miles north of city on Lake Ponchartrain.

93.—HOUMA, LA.

Latitude	29° 34'.
Longitude	90° 45'.
Altitude	9 feet.
Population	1,600.
Accommodations ..	Five hotels.
Railroads	Houma Branch, connecting with the Southern Pacific at Schriever.
Topography	Flat and level country; Bayou Terre Bonne to the north, running at this point east and west.
Eastern horizon ..	Generally clear, bright sky, seldom misty or smoky.
Wind; drift	From the south or southeast.
Suggested site	None suggested; country covered with forests.

94.—SCHRIEVER, LA.

Latitude	29° 45'.
Longitude	90° 48'.
Altitude	16 feet.
Population	500.
Accommodations ..	One hotel.
Railroads	Southern Pacific, Thibodeaux and Houma Branch.
Topography	Bayou La Fourche 3 miles east; Bayou Terre Bonne passes through the town.
Eastern horizon ..	Misty.
Wind; drift	From the south.
Suggested site	None mentioned.

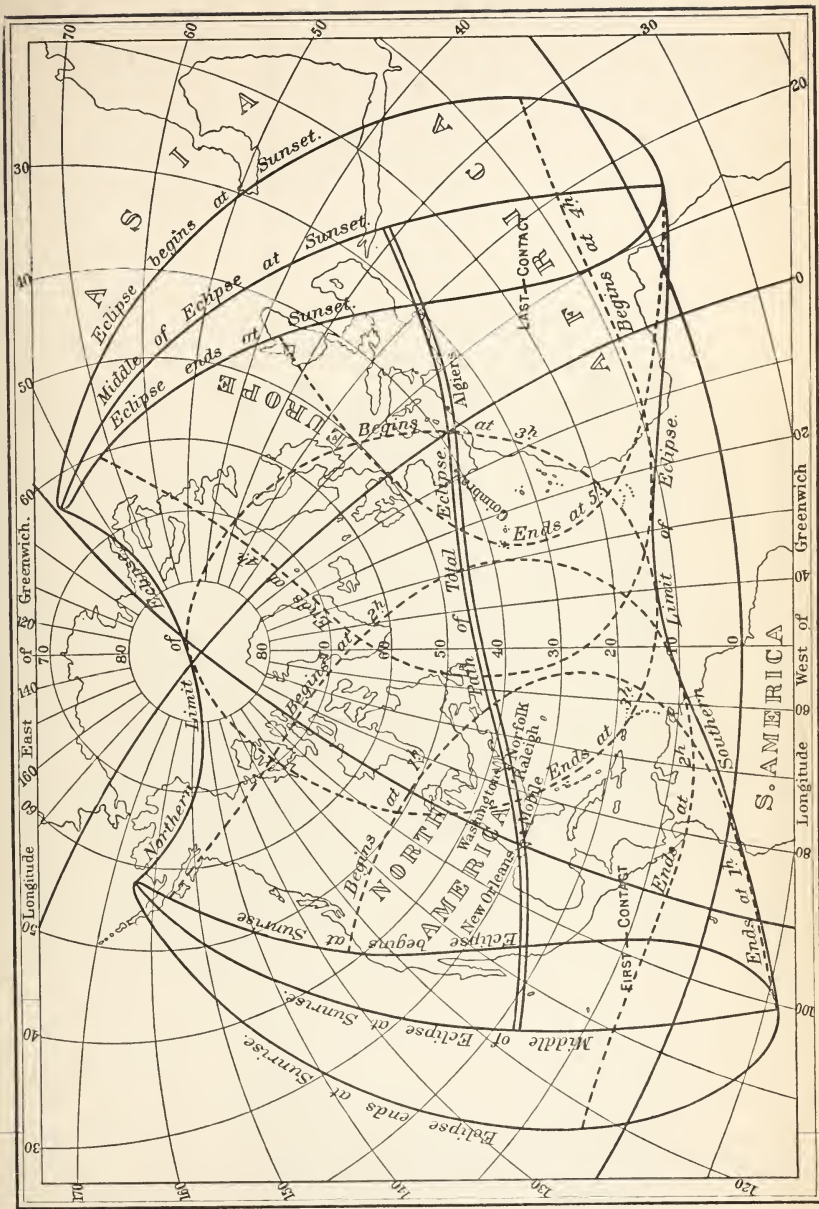
TABLE VI.—*Railroad abbreviations.*

C. & O	Chesapeake and Ohio.
N. & W	Norfolk and Western.
N. Y. P. & N.	New York, Philadelphia, and Norfolk.
S. A. L.	Seaboard Air Line.
A. C. L	Atlantic Coast Line.
Southern	Southern.
N. & C	Norfolk and Carolina.
N. & S	Norfolk and Southern.
A. & D.	Atlantic and Danville.
Va. B. & S	Virginia Beach and Southern.
A. & A.	Aberdeen and Ashboro.
O. C.	Ohio Central Lines.
C. & W. C	Charleston and Western Carolina.
Ga.	Georgia.
Cent. of Ga.	Central of Georgia.
A. & F.	Alabama and Florida.
Ga. M.	Georgia Midland.
M. & G.	Mobile and Gerard.
S. A.	Southern Alabama.
L. & N.	Louisville and Nashville.
M. & B.	Mobile and Birmingham.
M. & O.	Mobile and Ohio.
M. J. & K. C.	Mobile, Jackson, and Kansas City.
I. C.	Illinois Central.
N. O. & N. E.	New Orleans and Northeastern.
S. P.	Southern Pacific.

This data is self-explanatory and needs no comment. The United States Coast and Geodetic Survey and the United States Geological Survey courteously furnished the values for latitude, longitude, and elevation for several places, as indicated in the collection. In all other cases the positions were scaled from the Rand, McNally & Co.'s large atlas for 1899.

Table VI gives the railroad titles in full. The preceding data contain all the facts which it has been practicable to secure, previous to a visit to the observing station, and before the actual occurrence of the eclipse itself, and it is offered to astronomers and amateur observers for their information. It might have been thought by some desirable to furnish other general meteorological data giving the pressure, temperature, and humidity, for places in the Southern States. This can yet be done if there is reason to believe astronomers can make any definite use of it. Our records for the region are very complete and are published quite fully in the annual reports of the Chief of the Weather Bureau, including the year 1897; also in the Monthly Weather Review up to date. By referring to them all the information needed can, doubtless, be found without further publication.

Chart I. Total Eclipse of May 28, 1900. From the American Ephemeris and Nautical Almanac.



NOTE.—The hours of beginning and ending are expressed in Greenwich mean time.

Chart II. Cloudiness in Path of Total Eclipse of May 28, 1900. Observations of 1899.

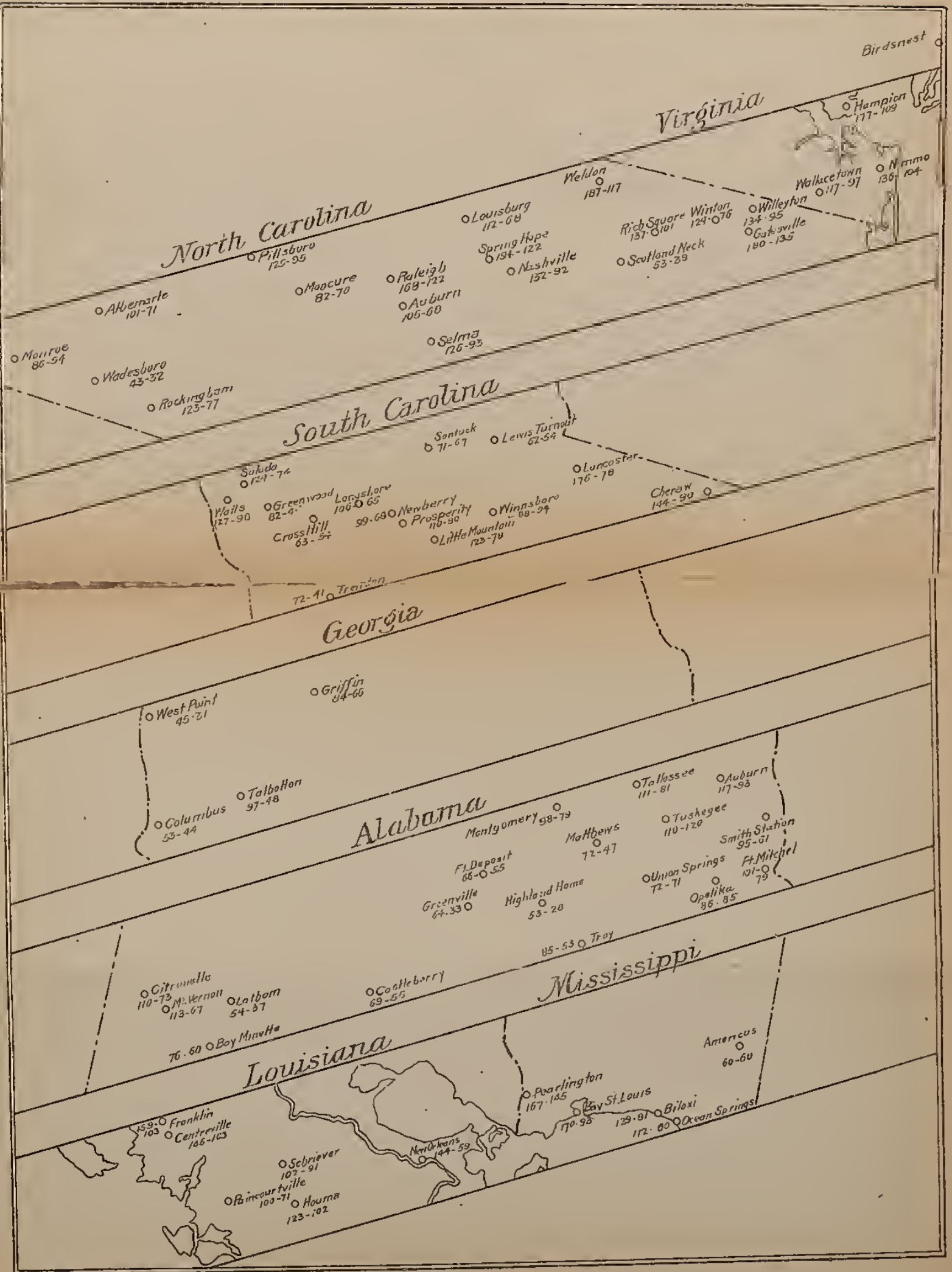


Chart III. Relative Average Cloudiness Along the Eclipse Track.

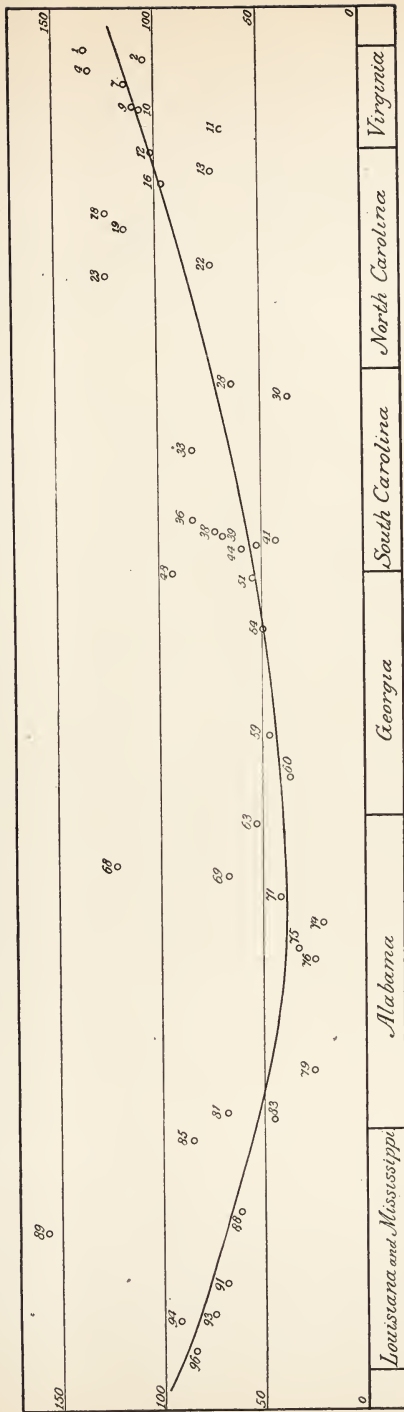


Chart IV. The Eclipse Track and Observing Stations in the United States.

